

REMARKS

With the above amendments, claims 1-16 are canceled, claims 17, 19, 20, 23, and 24 are amended, claims 22 and 25 are canceled, and claims 26-31 are added. This leaves claims 17-21, 23-24, and 26-31 pending, with claims 17, 20, and 24 being independent.

In the Office Action, the following claims are rejected under 35 U.S.C. 102(b): (1) claims 17-18 are rejected as allegedly being anticipated by U.S. Patent No. 5,411,142 to Abbott; (2) claims 17-19 are rejected as allegedly being anticipated by U.S. Patent No. 2,328,568 to Maxwell; and (3) claims 17-18, 20-21, and 23-25 are rejected as allegedly being anticipated by U.S. Patent No. 1,912,910 to Neuman et al.

Additionally, the Office Action alleges the following obviousness rejections under 35 U.S.C. 103(a): (1) claims 17-18 and 20-25 are rejected as being unpatentable over Neuman '910 in view of Abbott '142 and Maxwell '568; and (2) claims 20-25 are rejected as being unpatentable over Abbott '142 in view of Neuman and legal precedent.

Applicants have carefully reviewed the rejections, and respectfully request reconsideration in view of the above amendments and the following remarks.

I. Rejections under 35 U.S.C. § 102(b) and 103(a)

After the above claim amendments, (1) claims 17-18 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent No. 5,411,142 to Abbott; (2) claims 17-19 stand rejected as allegedly being anticipated by U.S. Patent No. 2,328,568 to Maxwell; and (3) claims 17-18, 20-21, and 23-25 stand rejected as allegedly being anticipated by U.S. Patent No. 1,912,910 to Neuman et al. Additionally, (a) claims 17-18 and 20-25 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Neuman '910 in view of Abbott '142 and Maxwell '568 and (b) claims 20-25 stand rejected as allegedly being unpatentable over Abbott '142 in view of Neuman and legal precedent.

Applicants have amended independent claims 17, 20, and 24 to address the rejections. Applicants assert that claims 17, 20, and 24, and their dependent claims, are now allowable.

As amended, independent claims 17, 20, and 24 require the step of "providing a first mixed particulate material separating apparatus including a separating chamber, and an angle of entry connection, the angle of entry connection being angled upwardly with respect to the

separating chamber.” Furthermore, claims 17, 20, and 24 require that the mixed particulate material enters the first mixed particulate material separating apparatus “through the angle of entry connection so that the mixed particular material has both upward and horizontal velocity components.” The cited references lack these features.

As explained in Applicant’s specification, the mixed particle material enters the separation chamber 4 through the angle of entry connection 26. *See* para. [0030]. The angle at which angle of entry connection 26 makes with respect to separation chamber 4 is important for proper functioning of material separator 100. If, for example, the angle between angle of entry connection 26 and separation chamber 4 is 90°, then little or no material would travel up separation chamber 4. This results because the vacuumed material 32 travels straight into separation chamber 4 and strikes the opposite wall; the vacuumed material 32 has no upward velocity vector. On the other extreme, if the angle between angle of entry connection 26 and separation chamber is 0° (i.e., pointing straight up), then it is possible that no separation of material will occur, as the material with higher specific gravity (i.e., the bullets) do not strike the inner wall of separation chamber 4 which causes them to slow down, and thus do not fall onto automatic unloader valve 20. *See* para. [0031].

Therefore, because the angle of entry connection 26 is at an angle to separation chamber 4, vacuumed material 32 will have both an upward and horizontal velocity component, and the vacuumed material 32 will strike against the inner wall of the separation chamber 4. This causes the vacuumed material 32 to slow down somewhat, allowing the lower specific gravity material 34 to continue up the separation chamber 4, and the higher specific gravity material 28 to fall to the bottom 5 of the separation chamber 4. The lower specific gravity material 34 is then expelled out of the separation chamber 4. The higher specific gravity material 28 collects in the bottom of the separation chamber. *See* para. [0032]

In contrast, the discharge assemblies of the Abbott ‘142 patent, the Neuman ‘910 patent, and the Maxwell ‘568 do not disclose an angle of entry connection which is “angled upwardly with respect to the separating chamber” so that “the mixed particular material has both upward and horizontal velocity components” when the material enters the separating chamber.

Starting with the Neuman ‘910 patent, as seen in Fig. 1 of that patent, for example, material is introduced into the apparatus through a “horizontally disposed casing 9.” *See* col. 2,

lines 84-85. Since the casing 9 is horizontally disposed, there is no angle of entry connection, and the material has no upward velocity component when the material enters the apparatus.

The Abbott '142 patent discloses introducing material into an air channel 108 with a downwardly facing tube 113. *See* Fig. 1. Accordingly, the Abbott '142 patent does not disclose an angle of entry connection which is "angled upwardly with respect to the separating chamber" so that "the mixed particular material has both upward and horizontal velocity components" when the material enters the separating chamber.

Similarly, the Maxwell '568 patent discloses introducing material with a hopper 14. The hopper 14 is located at the top of the apparatus, and introduces the material with a downward velocity. Accordingly, the Maxwell '142 patent does not disclose an angle of entry connection which is "angled upwardly with respect to the separating chamber" so that "the mixed particular material has both upward and horizontal velocity components" when the material enters the separating chamber.

Moreover, none of the cited references suggests using an upwardly angled connection in the claimed manner. Consequently, claims 17, 20, and 24 (as well as their dependent claims) are allowable, and notice to that effect is respectfully requested.

II. Conclusion

In view of the above, it is believed that the above-identified application is in condition for allowance, and notice to that effect is respectfully requested. Should the Examiner have any questions, the Examiner is encouraged to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



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